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ABSTRACT

The present trend in architecture is primarily functionalist in nature, but this functionalism is being increasingly tempered by human factors and artistic considerations. Accordingly, there is emerging a body of doctrine and architectural expression that yields a diversity of designs that must be assessed before any critical selection of construction plans and economic standards can be made. This bibliography aggregates some of the pertinent sources on techniques and problems encountered in appraisals. (Author/MLF)

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A BIBLIOGRAPHY AND REVIEW OF BUILDING EVALUATION SCHEMATA AND PRACTICES

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A BIBLIOGRAPHY AND REVIEW OF BUILDING EVALUATION SCHEMATA AND PRACTICES

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1. INTRODUCTION:

"Well-building hath three conditions: commodity, firmness and delight"[1]. Sir Henry Wotton's words, written in 1624, describe succinctly the separate purposes of architecture; yet architects and their critics have seemed to be occupied mainly by the aesthetic factor. It is, however, impossible to pronounce dogmatically on this subject, for a theory of the aesthetic values in architecture would be based ultimately on a philosophy of taste[2]. The present trend in architecture is primarily functionalist in nature, but this functionalism is being increasingly tempered by human factors (i.e. the relationship between building and user is assuming a major role in design) and artistic considerations. Accordingly, there is emerging a body of doctrine and architectural

expression, which yields a diversity of designs that must be assessed before any critical selection of construction, plans and economic standards can be made.

This bibliography, though not exhaustive, attempts to aggregate some of the pertinent sources which may shed light on techniques and problems encountered in appraisals. The references are grouped together under the various headings in order to facilitate the work for the users. Some references, however, cover more than one area whilst others are arbitrarily placed in a section. These seeming anomalies result from the complex nature of building and the various facets of evaluation.

2. THE EVALUATION PROCESS:

Evaluation schemata vary widely. However, one way of looking at them is as a "kind of research"[3] which constitutes "a systematic search for cause and effect that could lead to a greater understanding and accuracy in predicting the performance of buildings"[4]. In these evaluations, knowledge of the human responses - physiological, psychological and social - to the physical factors of the built environment is needed to establish standards. These criteria should be realistic and enable the occupants to judge the validity and value of the technologies which have been developed. Thus, methods of sensory evaluation, i.e. using "human meters", must be developed to obtain a subjective assessment of the surroundings

in terms of the standards which have been established. The "calibration of the human meters" should take into account the problems of variance, reliability and sensitization of the instruments. This type of appraisal has required the formation of multi-disciplinary evaluation teams of experts who ensure the reliability and validity of the assessments[5].

In other types of evaluation, there may be a desire to maximise returns on investments (financial or otherwise) and the practice is to assign to all the parameters a common unit value (e.g. monetary or thermal units) in which term the design is optimized within the external constraints.

3. EVALUATION IN DESIGN:

The design process has gradually developed into a method of "solving problems of design decision-making"[6]. Various proposals regarding the structure of a design model have been made, but essentially the process comprises a series of loops, each with an analysis phase, followed by a synthesis phase and then an evaluation. The design process cycle is not rigid. For example, the evaluation phase may not entail active detailed appraisal of the synthesis and analysis but a pause to survey the progress and difficulties encountered and an assessment of the degree to which objectives have been met. In other words, the evaluation process in design serves both as "feed-back" and "feed-forward". However, when considering the finished building, the appraisal is only a feed-forward

mechanism, for the lessons learnt from a completed design project can only be applied in the next one.

4. EVALUATION OF BUILDINGS:

The 'spectrum' of building technology, methods and materials is vast, ranging from traditional methods (e.g. log cabins) to sophisticated 'open' building systems. What type of construction is most suited for a particular user depends on the requirements and circumstances. However, each system has its advantages and shortcomings, and so accurate information about the behavior of these products is essential for evaluation, when performance is assessed against need and financial constraints.

It is hard (if not impossible) to conceive of all the contingencies that may be met when executing a design and so variations are made on site. The design of buildings can be appraised on an *ad hoc* basis, but this does not necessarily contribute to greater understanding of the problems of buildings. Prepared check lists provide a systematic framework for assessing the performance of the hardware; however, not all the parameters listed may relate to a particular building and so for each different situation experience and judgement have to be relied upon to select the most appropriate factors. The results are checked against the objectives and constraints of the design and an evaluation is then carried out. In some cases, where an effort has been made to develop

performance specifications, measured performance is compared with criteria derived from user requirements prior to the inception of design[7].

5. EVALUATION OF BUILDING ELEMENTS:

It is often desirable to evaluate a building in terms of whether it is able to support particular activities and this leads to appraisals of separate physical systems (such as windows) and complex subsystems (like heating and air conditioning). This form of evaluation is often performed on existing structures before converting them from one usage to another. It is also used to determine whether a facility helps or hinders users' activities and to assess the need for improvements.

Briefly, then, evaluation is useful for decision making and in revealing deficiencies in operation and design. Thus, it serves as a first step in getting architects and engineers to learn from their experience.

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